

<!--StartFragment-->RESULT 1
 ABR55370
 ID ABR55370 standard; peptide; 58 AA.
 XX
 AC ABR55370;
 XX
 DT 29-JUL-2003 (first entry)
 XX
 DE Amino acid sequence of dortoxin.
 XX
 KW Scorpion; bortoxin; venom; blood brain barrier; ion channel;
 KW kinin receptor; insecticide; pesticide; dortoxin.
 XX
 OS Parabuthus transvaalicus.
 XX
 PN WO2003028666-A2.
 XX
 PD 10-APR-2003.
 XX
 PF 04-OCT-2002; 2002WO-US031861.
 XX
 PR 04-OCT-2001; 2001US-0327602P.
 PR 28-JUN-2002; 2002US-0393070P.
 XX
 PA (REGC) UNIV CALIFORNIA.
 XX
 PI Hammock BD, Inceoglu B;
 XX
 DR WPI; 2003-441071/41.
 XX
 PT Novel scorpion bortoxin family polypeptide derived from venom of
 PT Parabuthus transvaalicus, useful for producing a composition for treating
 PT diseases or conditions associated with ion channel function or kinin
 PT activity.
 XX
 PS Claim 6; Page 74; 104pp; English.
 XX
 CC The specification describes a scorpion bortoxin family polypeptide,
 CC derived from the venom of Parabuthus transvaalicus, separated from its
 CC natural milieu. The polypeptide is a modulator of the permeability of the
 CC blood brain barrier. The polypeptide also has an ion channel binding
 CC activity of a bortoxin family polypeptide and kinin receptor activity.
 CC The peptide is useful for modulating the permeability of the blood brain
 CC barrier. It is also useful for producing pharmaceutical compositions
 CC which are useful for treating diseases and conditions associated with the
 CC ion channel function or kinin activity. Antibodies generated using the
 CC polypeptide are useful for detecting the presence of scorpion venom toxin
 CC and in altering bortoxin family polypeptide-ion channel binding or kinin
 CC activity. Antivenom comprising these antibodies is useful as an
 CC insecticide or pesticide. The present sequence represents dortoxin of
 CC Parabuthus transvaalicus, a polypeptide of the invention
 XX
 SQ Sequence 58 AA;

Query Match 66.6%; Score 228.5; DB 6; Length 58;
 Best Local Similarity 66.1%; Pred. No. 3.1e-19;
 Matches 37; Conservative 7; Mismatches 11; Indels 1; Gaps 1;
 Qy 1 ADVPGNYPLDSSDNTYLCAPLGDNPDCIKICQKHGVDYGYCYAFQCWC-EFLKDEN 55
 ||||||| | ||| | ||:|| || :||: ||| ||| |||:||| ||| ||:| ||:|
 Db 1 ADVPGNYPLDKDGNTYTCLKLGENKDCQKVCKLHGVQYGYCYAFECWCKEYLDDKD 56

RESULT 2
 ABR55371
 ID ABR55371 standard; peptide; 58 AA.
 XX
 AC ABR55371;
 XX
 DT 29-JUL-2003 (first entry)
 XX
 DE Amino acid sequence of bestoxin.
 XX
 KW Scorpion; bortoxin; venom; blood brain barrier; ion channel;
 KW kinin receptor; insecticide; pesticide; bestoxin.
 XX

OS Parabuthus transvaalicus.
 XX
 PN WO2003028666-A2.
 XX
 PD 10-APR-2003.
 XX
 PF 04-OCT-2002; 2002WO-US031861.
 XX
 PR 04-OCT-2001; 2001US-0327602P.
 PR 28-JUN-2002; 2002US-0393070P.
 XX
 PA (REGC) UNIV CALIFORNIA.
 XX
 PI Hammock BD, Inceoglu B;
 XX
 DR WPI; 2003-441071/41.
 XX
 PT Novel scorpion birstoxin family polypeptide derived from venom of
 PT Parabuthus transvaalicus, useful for producing a composition for treating
 PT diseases or conditions associated with ion channel function or kinin
 PT activity.
 XX
 PS Claim 6; Page 75; 104pp; English.
 XX
 CC The specification describes a scorpion birstoxin family polypeptide,
 CC derived from the venom of Parabuthus transvaalicus, separated from its
 CC natural milieu. The polypeptide is a modulator of the permeability of the
 CC blood brain barrier. The polypeptide also has an ion channel binding
 CC activity of a birstoxin family polypeptide and kinin receptor activity.
 CC The peptide is useful for modulating the permeability of the blood brain
 CC barrier. It is also useful for producing pharmaceutical compositions
 CC which are useful for treating diseases and conditions associated with the
 CC ion channel function or kinin activity. Antibodies generated using the
 CC polypeptide are useful for detecting the presence of scorpion venom toxin
 CC and in altering birstoxin family polypeptide-ion channel,binding or kinin
 CC activity. Antivenom comprising these antibodies is useful as an
 CC insecticide or pesticide. The present sequence represents bestoxin of
 CC Parabuthus transvaalicus, a polypeptide of the invention
 XX
 SQ Sequence 58 AA;

Query Match 66.0%; Score 226.5; DB 6; Length 58;
 Best Local Similarity 66.1%; Pred. No. 5.3e-19;
 Matches 37; Conservative 6; Mismatches 12; Indels 1; Gaps 1;

Qy 1 ADVPGNYPLDSSDNTYLCAPLGDNPDCIKICQKHGVDYGYCYAFQCWC-EFLKDEN 55
 ||||||| |||| | ||:| || ||:|: ||| ||||||| ||| ||:| |:
 Db 1 ADVPGNYPLDKDGNTYTCLEGENKDCQKVCKLHGVQYGYCYAFSCWCKEYLDDKD 56

RESULT 3
 ABR55369
 ID ABR55369 standard; peptide; 58 AA.
 XX
 AC ABR55369;
 XX
 DT 29-JUL-2003 (first entry)
 XX
 DE Amino acid sequence of ikitoxin.
 XX
 KW Scorpion; birstoxin; venom; blood brain barrier; ion channel;
 KW kinin receptor; insecticide; pesticide; ikitoxin.
 XX
 OS Parabuthus transvaalicus.
 XX
 PN WO2003028666-A2.
 XX
 PD 10-APR-2003.
 XX
 PF 04-OCT-2002; 2002WO-US031861.
 XX
 PR 04-OCT-2001; 2001US-0327602P.
 PR 28-JUN-2002; 2002US-0393070P.
 XX
 PA (REGC) UNIV CALIFORNIA.
 XX

PI Hammock BD, Inceoglu B;
 XX
 DR WPI; 2003-441071/41.
 XX
 PT Novel scorpion birstoxin family polypeptide derived from venom of
 PT Parabuthus transvaalicus, useful for producing a composition for treating
 PT diseases or conditions associated with ion channel function or kinin
 PT activity.
 XX
 PS Claim 6; Page 73; 104pp; English.
 XX
 CC The specification describes a scorpion birstoxin family polypeptide,
 CC derived from the venom of Parabuthus transvaalicus, separated from its
 CC natural milieau. The polypeptide is a modulator of the permeability of the
 CC blood brain barrier. The polypeptide also has an ion channel binding
 CC activity of a birstoxin family polypeptide and kinin receptor activity.
 CC The peptide is useful for modulating the permeability of the blood brain
 CC barrier. It is also useful for producing pharmaceutical compositions
 CC which are useful for treating diseases and conditions associated with the
 CC ion channel function or kinin activity. Antibodies generated using the
 CC polypeptide are useful for detecting the presence of scorpion venom toxin
 CC and in altering birstoxin family polypeptide-ion channel binding or kinin
 CC activity. Antivenom comprising these antibodies is useful as an
 CC insecticide or pesticide. The present sequence represents ikitoxin of
 CC Parabuthus transvaalicus, a polypeptide of the invention
 XX
 SQ Sequence 58 AA;

Query Match 65.3%; Score 224; DB 6; Length 58;
 Best Local Similarity 63.0%; Pred. No. 1e-18;
 Matches 34; Conservative 9; Mismatches 11; Indels 0; Gaps 0;

Qy 1 ADVPGNYPLDSSDNTYLCAPLGDNPDCIKICQKHGVGYCYAFQCWCEFLKDE 54
 ||||||| | ||| | ||:| :|: ||| ||||| :||||:||:|:
 Db 1 ADVPGNYPLDKDGNTYKCFLGENEECLNVCKLHGVQYGYCYASKCWCEYLEDD 54

RESULT 4
 ABR55368
 ID ABR55368 standard; peptide; 58 AA.
 XX
 AC ABR55368;
 XX
 DT 29-JUL-2003 (first entry)
 XX
 DE Amino acid sequence of birstoxin.
 XX
 KW Scorpion; birstoxin; venom; blood brain barrier; ion channel;
 KW kinin receptor; insecticide; pesticide.
 XX
 OS Parabuthus transvaalicus.

XX
 PN WO2003028666-A2.
 XX
 PD 10-APR-2003.
 XX
 PF 04-OCT-2002; 2002WO-US031861.
 XX
 PR 04-OCT-2001; 2001US-0327602P.
 PR 28-JUN-2002; 2002US-0393070P.

XX
 PA (REGC) UNIV CALIFORNIA.

XX
 PI Hammock BD, Inceoglu B;
 XX
 DR WPI; 2003-441071/41.

XX
 PT Novel scorpion birstoxin family polypeptide derived from venom of
 PT Parabuthus transvaalicus, useful for producing a composition for treating
 PT diseases or conditions associated with ion channel function or kinin
 PT activity.

XX
 PS Claim 6; Page 71; 104pp; English.

XX
 CC The specification describes a scorpion birstoxin family polypeptide,
 CC derived from the venom of Parabuthus transvaalicus, separated from its

CC natural milieu. The polypeptide is a modulator of the permeability of the
 CC blood brain barrier. The polypeptide also has an ion channel binding
 CC activity of a birstoxin family polypeptide and kinin receptor activity.
 CC The peptide is useful for modulating the permeability of the blood brain
 CC barrier. It is also useful for producing pharmaceutical compositions
 CC which are useful for treating diseases and conditions associated with the
 CC ion channel function or kinin activity. Antibodies generated using the
 CC polypeptide are useful for detecting the presence of scorpion venom toxin
 CC and in altering birstoxin family polypeptide-ion channel binding or kinin
 CC activity. Antivenom comprising these antibodies is useful as an
 CC insecticide or pesticide. The present sequence represents birstoxin of
 CC Parabuthus transvaalicus, a polypeptide of the invention

XX

SQ Sequence 58 AA;

Query Match 64.4%; Score 221; DB 6; Length 58;
 Best Local Similarity 63.0%; Pred. No. 2.3e-18;
 Matches 34; Conservative 8; Mismatches 12; Indels 0; Gaps 0;

Qy 1 ADVPGNYPLDSSDNTYLCAPLGDNPDCIKICQKHGVVDYGYCYAFQCWCEFLKDE 54

||||||| ||| | || | :|: :|: ||| ||||| :|||:||:|:

Db 1 ADVPGNYPLDKDGNTYKCFLGGNEECINVCKLHGVQYGYCYASKCWCEYLEDD 54

RESULT 5

AAB20075

ID AAB20075 standard; protein; 89 AA.

XX

AC AAB20075;

XX

DT 11-SEP-2003 (révisé)

DT 23-APR-2001 (first entry)

XX

DE Scorpion sodium channel agonist (insecticidal toxin).

XX

KW Scorpion; venom; toxin; sodium channel agonist; anticonvulsant;
 KW nootropic; cerebroprotective; insecticide.

XX

OS Hottentotta judaica.

XX

FH Key Location/Qualifiers

FT Peptide 1..21

FT /label= Sig_peptide

FT Protein 22..89

FT /label= Mature_protein

XX

PN WO200078957-A2.

XX

PD 28-DEC-2000.

XX

PF 21-JUN-2000; 2000WO-US017048.

XX

PR 22-JUN-1999; 99US-0140410P.

XX

PA (DUPO) DU PONT DE NEMOURS & CO E I.

XX

PI Herrmann R, Lee J, Wong JF;

XX

DR WPI; 2001-050111/06.

DR N-PSDB; AAA89397.

XX

PT New isolated polynucleotide encoding a scorpion toxin for treating
 PT epilepsy, degenerative disorders such as Huntington's disease, and
 PT neuronal death following stroke, and for creating plants that are insect-
 PT tolerant.

XX

PS Claim 10; Page 56-57; 60pp; English.

XX

CC The present sequence is that of a scorpion (Buthotus judaicus) venom
 CC protein showing 29.7% identity to an insecticidal toxin of Orthochirus
 CC scrobiculosus. The sequence was predicted from a cDNA clone (see
 CC AAA89397) isolated from the scorpion telson cDNA library. The invention
 CC provides isolated nucleic acid sequences (see AAA89386-400) encoding
 CC scorpion toxins (see AAB20064-78) that are sodium channel modifiers. The
 CC invention also relates to the construction of a chimeric gene encoding
 CC all or part of the sodium channel modifier, in sense or antisense

CC orientation, where expression of the chimeric gene results in production
 CC of altered levels of the sodium channel modifier in a transformed host
 CC cell. Sodium channel modifiers can be used to treat neurological problems
 CC involving abnormal functioning of excitatory amino acid synapses, e.g.
 CC epilepsy, Huntington's disease and neuronal death following stroke.
 CC Genetically engineered recombinant baculoviruses which express protein
 CC toxins capable of incapacitating an insect host can be used as biological
 CC insecticides. The nucleic acids can be used to create transgenic plants
 CC in which sodium channel agonists of the invention are expressed for
 CC improved insect tolerance. (Updated on 11-SEP-2003 to standardise OS
 CC field)

XX

SQ Sequence 89 AA;

Query Match 48.0%; Score 164.5; DB 4; Length 89;
 Best Local Similarity 45.6%; Pred. No. 1.7e-11;
 Matches 26; Conservative 9; Mismatches 21; Indels 1; Gaps 1;

Qy 2 DVPGNYPLDSSDNTYLCAPLDNPDCIKICQKHGVDYGYCYAFQCWCEFLKDENVKV 58

| | ||||: :| | | |: ||: ||| ||||: ||||:|| |:: :

Db 24 DTPGNYPISVYGTSGCTAFNHN-YCVDICKVHGVKYGYCWVTSCWCEYLKKEDIDI 79

RESULT 6

AAB20077

ID AAB20077 standard; protein; 89 AA.

XX

AC AAB20077;

XX

DT 11-SEP-2003 (revised)

DT 23-APR-2001 (first entry)

XX

DE Scorpion sodium channel agonist (insecticidal toxin).

XX

KW Scorpion; venom; toxin; sodium channel agonist; anticonvulsant;

KW nootropic; cerebroprotective; insecticide.

XX

OS Hottentotta judaica.

XX

FH Key Location/Qualifiers

FT Peptide 1..21

FT /label= Sig_peptide

FT Protein 22..89

FT /label= Mature_protein

XX

PN WO200078957-A2.

XX

PD 28-DEC-2000.

XX

PF 21-JUN-2000; 2000WO-US017048.

XX

PR 22-JUN-1999; 99US-0140410P.

XX

PA (DUPO) DU PONT DE NEMOURS & CO E I.

XX

PI Herrmann R, Lee J, Wong JF;

XX

DR WPI; 2001-050111/06.

DR N-PSDB; AAA89399.

XX

PT New isolated polynucleotide encoding a scorpion toxin for treating
 PT epilepsy, degenerative disorders such as Huntington's disease, and
 PT neuronal death following stroke, and for creating plants that are insect-
 PT tolerant.

XX

PS Claim 10; Page 57-58; 60pp; English.

XX

CC The present sequence is that of a scorpion (*Buthotus judaicus*) venom
 CC protein showing 29.6% identity to an insecticidal toxin of *Orthochirus*
 CC *scrobiculosus*. The sequence was predicted from a cDNA clone (see
 CC AAA89399) isolated from the scorpion telson cDNA library. The invention
 CC provides isolated nucleic acid sequences (see AAA89386-400) encoding
 CC scorpion toxins (see AAB20064-78) that are sodium channel modifiers. The
 CC invention also relates to the construction of a chimeric gene encoding
 CC all or part of the sodium channel modifier, in sense or antisense
 CC orientation, where expression of the chimeric gene results in production

CC of altered levels of the sodium channel modifier in a transformed host
 CC cell. Sodium channel modifiers can be used to treat neurological problems
 CC involving abnormal functioning of excitatory amino acid synapses, e.g.
 CC epilepsy, Huntington's disease and neuronal death following stroke.
 CC Genetically engineered recombinant baculoviruses which express protein
 CC toxins capable of incapacitating an insect host can be used as biological
 CC insecticides. The nucleic acids can be used to create transgenic plants
 CC in which sodium channel agonists of the invention are expressed for
 CC improved insect tolerance. (Updated on 11-SEP-2003 to standardise OS
 CC field)

XX

SQ Sequence 89 AA;

Query Match 47.1%; Score 161.5; DB 4; Length 89;
 Best Local Similarity 45.5%; Pred. No. 3.7e-11;
 Matches 25; Conservative 11; Mismatches 18; Indels 1; Gaps 1;
 Qy 4 PGNYPLDSSDNTYLCAPLGDNPDCIKICQKHGVDYGYCYAFQCWCFLKDENVKV 58
 ||||: :| | :| ||: ||:||||: ||||:||:|:: :
 Db 26 PGNYPISIYQQSYGCTS-SDHDYCADCICKVHGVNYGYCWVTSCWCEYLKEEDINI 79

RESULT 7

AAB20076

ID AAB20076 standard; protein; 89 AA.

XX

AC AAB20076;

XX

DT 11-SEP-2003 (revised)

DT 23-APR-2001 (first entry)

XX

DE Scorpion sodium channel agonist (insecticidal toxin).

XX

KW Scorpion; venom; toxin; sodium channel agonist; anticonvulsant;
 KW nootropic; cerebroprotective; insecticide.

XX

OS Hottentotta judaica.

XX

FH Key Location/Qualifiers

FT Peptide 1..21

FT /label= Sig_peptide

FT Protein 22..89

FT /label= Mature_protein

XX

PN WO200078957-A2.

XX

PD 28-DEC-2000.

XX

PF 21-JUN-2000; 2000WO-US017048.

XX

PR 22-JUN-1999; 99US-0140410P.

XX

PA (DUPO) DU PONT DE NEMOURS & CO E I.

XX

PI Herrmann R, Lee J, Wong JF;

XX

DR WPI; 2001-050111/06.

DR N-PSDB; AAA89398.

XX

PT New isolated polynucleotide encoding a scorpion toxin for treating
 PT epilepsy, degenerative disorders such as Huntington's disease, and
 PT neuronal death following stroke, and for creating plants that are insect-
 PT tolerant.

XX

PS Claim 10; Page 57; 60pp; English.

XX

CC The present sequence is that of a scorpion (*Buthötus judaicus*) venom
 CC protein showing 29.6% identity to an insecticidal toxin of *Orthochirus*
 CC *scrobiculosus*. The sequence was predicted from a cDNA clone (see
 CC AAA89398) isolated from the scorpion telson cDNA library. The invention
 CC provides isolated nucleic acid sequences (see AAA89386-400) encoding
 CC scorpion toxins (see AAB20064-78) that are sodium channel modifiers. The
 CC invention also relates to the construction of a chimeric gene encoding
 CC all or part of the sodium channel modifier, in sense or antisense
 CC orientation, where expression of the chimeric gene results in production
 CC of altered levels of the sodium channel modifier in a transformed host

CC cell. Sodium channel modifiers can be used to treat neurological problems
 CC involving abnormal functioning of excitatory amino acid synapses, e.g.
 CC epilepsy, Huntington's disease and neuronal death following stroke.
 CC Genetically engineered recombinant baculoviruses which express protein
 CC toxins capable of incapacitating an insect host can be used as biological
 CC insecticides. The nucleic acids can be used to create transgenic plants
 CC in which sodium channel agonists of the invention are expressed for
 CC improved insect tolerance. (Updated on 11-SEP-2003 to standardise OS
 CC field)

XX

SQ Sequence 89 AA;

Query Match 44.5%; Score 152.5; DB 4; Length 89;
 Best Local Similarity 43.6%; Pred. No. 4.3e-10;
 Matches 24; Conservative 11; Mismatches 19; Indels 1; Gaps 1;

Qy 4 PGNYPILDSSDNTYLCAPLGDNPDCIKICQKHGVGYCÝAFQCWCEFLKDENVKV 58
 |||||: :| | : | ||: |||:||||: ||||:||:||:: :
 Db 26 PGNYPISIYGKSYGCTS-SYHDYCADCICKVHGVNYGYCWVTSCWCEYLKEEDINI 79

RESULT 8

AAB20078

ID AAB20078 standard; protein; 89 AA.

XX

AC AAB20078;

XX

DT 11-SEP-2003 (revised)

DT 23-APR-2001 (first entry)

XX

DE Scorpion sodium channel agonist (insecticidal toxin).

XX

KW Scorpion; venom; toxin; sodium channel agonist; anticonvulsant;
 KW nootropic; cerebroprotective; insecticide.

XX

OS Hottentotta judaica.

XX

FH Key Location/Qualifiers

FT Peptide 1. .21

FT /label= Sig_peptide

FT Protein 22. .89

FT /label= Mature_protein

XX

PN WO200078957-A2.

XX

PD 28-DEC-2000.

XX

PF 21-JUN-2000; 2000WO-US017048.

XX

PR 22-JUN-1999; 99US-0140410P.

XX

PA (DUPO). DU PONT DE NEMOURS & CO E I.

XX

PI Herrmann R, Lee J, Wong JF;

XX

DR WPI; 2001-050111/06.

DR N-PSDB; AAA89400.

XX

PT New isolated polynucleotide encoding a scorpion toxin for treating
 PT epilepsy, degenerative disorders such as Huntington's disease, and
 PT neuronal death following stroke, and for creating plants that are insect-
 PT tolerant.

XX

PS Claim 10; Page 58; 60pp; English.

XX

CC The present sequence is that of a scorpion (*Buthötus judaicus*) venom
 CC protein showing 29.6% identity to an insecticidal toxin of *Orthochirus*
 CC *scrobiculosus*. The sequence was predicted from a cDNA clone (see
 CC AAA89400) isolated from the scorpion telson cDNA library. The invention
 CC provides isolated nucleic acid sequences (see AAA89386-400) encoding
 CC scorpion toxins (see AAB20064-78) that are sodium channel modifiers. The
 CC invention also relates to the construction of a chimeric gene encoding
 CC all or part of the sodium channel modifier, in sense or antisense
 CC orientation, where expression of the chimeric gene results in production
 CC of altered levels of the sodium channel modifier in a transformed host
 CC cell. Sodium channel modifiers can be used to treat neurological problems

CC involving abnormal functioning of excitatory amino acid synapses, e.g.
CC epilepsy, Huntington's disease and neuronal death following stroke.
CC Genetically engineered recombinant baculoviruses which express protein
CC toxins capable of incapacitating an insect host can be used as biological
CC insecticides. The nucleic acids can be used to create transgenic plants
CC in which sodium channel agonists of the invention are expressed for
CC improved insect tolerance. (Updated on 11-SEP-2003 to standardise OS
CC field)

XX

SQ Sequence 89 AA;

Query Match 44.5%; Score 152.5; DB 4; Length 89;
Best Local Similarity 43.6%; Pred. No. 4.3e-10;
Matches 24; Conservative 11; Mismatches 19; Indels 1; Gaps 1;

Qy 4 PGNYPLDSSDNTYLCAPIGLDNPDCIKICQKHGVGDYGYCAYAFQCWCEFLKDENVKV 58
|||||: :|| | : | ||: |||:||||: ||||:||:||:: : .
Db 26 PGNYPISIYGKSYGCTS-SYHDYCADIICKVHGVNYGYCWVTSCWCEYLKEEDINI 79.

<!--EndFragment-->